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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/917,751	07/31/2001	Wen-Yih Liao	LIAO3030/EM/7087	2784

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EXAMINER	
ANGEBRANNDT, MARTIN J	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 09/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/917,751	LIAO ET AL.	
	Examiner	Art Unit	
	Martin J Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2001 and 07 November 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are **replete with errors** and the applicant's representative should have corrected these as well in the preliminary amendment of 11/7/2001.

In claim 1, it is not clear if there is more than one cyanine dye (ie what are the II, III and IV doing in the claim without their respective formulae) The "etc." (including the period) must be deleted. "aromatic and polyaromatic" what (maybe rings ?). What does the language "and its derivatives" embrace ? Proper nomenclature should show "$TCNQ^{-}_{m}$" as - - $(TCNQ^{-})_{m}$ - - in the formula and the "TCNQ-m" in the body of the claims should read - - TCNQ- - .

In claims 1-16, M can be only 1 to maintain electrical neutrality. (Note that in Ishida et al. '094, there are multiple dyes with respect to formula I.)

In claims 1-16 delete the "II", "III" and "IV" unless these formulae are introduced.

The language "while it is preparing the data storage ....." is intended use and merely adds confusion to the claims directed to the cyanine:TCNQ complex.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who

> has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1,5,14-16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Cho et al. '150.

Cho et al. '150 see examples 1,3,4, and 5, which use various solvents.

6. Claims 1,5,14-16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by JP 63-064794.

JP 63-064794 see examples in table 1 on page 4.

7. Claims 1,5,14-16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999).

Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) describes the addition of TCNQ to indoleneic cyanine

dyes and that these do not need quenchers. The lightfastness of the cyanine dyes is disclosed in the abstract and supporting data. In creased reflectivity is also disclosed with respect to figure 5 when using quenchers.

8. Claims 1,5,14-16 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Cho et al., Optical recording study of cyanine dye _TCNQ complexes", Mol. Cryst. Liq. Cryst. Pp. 393-398 (1995).

See complexes using dyes I or III of table 1 on page 394. See figures 2-5 and figure 7.

9. Claims 1,5,14-16 are rejected under 35 U.S.C. 102(e) as being fully anticipated by Morishima et al. '491.

See examples.

10. Claims 1,3-5 and 10-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. '087 combined with Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999).

Liao et al. '087 teach the use of mixtures of pentamethine and trimethine indolene dyes which have 4-methoxycarbonyl benzyl moieties bound to the nitrogen on the indole ring. Figure 1 shows the absorbance of the trimethine dye to be at 556 nm and figure 2 shows the pentamethine dye to have a maximum absorbance at 648 nm. The recording disk structure is a polycarbonate substrate coated with a solution of the two dyes, overcoated with a reflective layer and a protective layer. (5/39-60). The total content of the trimethine dye in the coating solution is 0.5 to 5% (claim 7), preferably 1.3 to 1.7% (claim 8). The amount of the pentamethine dye to the trimethine dye is 1 to 10 % (claim 5), preferably 3.5 to 5% (claim 6). The various coating solvents are disclosed in claims 9-15 and include alcohols, ethers, ketones, tetrafluoropropanol,

chloroform, dichloromethane and dimethylformamide. Useful counterions are disclosed including acid anions, halogens, alkylsulfonate arylsulfonate and perchlorates. (3/17-28). The use of 1.5 g of the trimethine dye and 0.075g of the pentamethine dyes in 100g of a TFP solution is disclosed. The pentamethine dye is present as 5% of the trimethine dye. These dyes are descriobed as having improved solubility and higher thermal stability vs. other similar cyanine dyes. (2/2-4).

It would have been obvious to add TCNQ compounds disclosed by Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) to the cyanine dyes containing optical recording media of Liao et al. '087 with a reasonable expectation of gaining in reflectivity and lightfastness taught by Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) and/or it would have been opbvious to use the cyanine dyes of Liao et al. '087 in place of those used in the examples of Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) with a reasonable expectation of realizing the gains in solubility and thermal stability taught by Liao et al. '087

11. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liao et al. '087 combined with Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999), further in view of Sato et al. '839.

Sato et al. '839 teaches that unsymmetrical indoleneic cyanine dyes have higher solubility and stability. (abstract and 2/10-15). Indoleneic and benzoindolenic dyes are described throughout. The addition of stabilizers is disclosed. (21/49 and 21/57-23/35). The addition of various materials to the recording layer is disclosed including polymeric binders, the

polymeric binder is held to act as an adhesive/glue. The substituents may be substituted or alkyl moieties.

In addition to the basis provided above, it would have been obvious to modify the combination of Liao et al. '087 and Morishima et al., A new type of light stabilizer for dye layers ...", Jpn. J. Appl. Phys., Vol. 38(1,3b) pp. 1634-1637 (03/1999) by modifying one of the substituents on the dyes to be an unsubstituted alkyl, specifically butyl, rather than an alkyl substituted by a methyl ester of 4- benzoic acid with a reasonable expectation of increasing the solubility of that dye.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Ishida et al. '094 teach the dyes of formulae I mixed with TCNQ compounds A1 or A2.

Morishima et al., 'New technologies improving lightfastness of recordable optical disks'. Kino Zairyo Vol 19(11) pp. 20-26 (1999), Lindner et al., 'Conducting complex TCNQ salrts with diazacyanine dye', Nouv. J. Chim., Vol. 8(7), pp. 475-480 (1984), Ahuja et al., "Charge-transfer complex formation in monolayers at the air water interface.", Thin Sol. Films, Vol. 210/211 pp 60-63 (1992) all teach cyanine dyes TCNQ complexes and are cumulative at this time.

Hu et al. '348 teaches cyanine dyes with N-4methoxycarbonyl benzyl substituents.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Martin J Angebranndt
Primary Examiner
Art Unit 1756

September 7, 2002